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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/564,419	01/11/2006	Oscar Hendrikus Willemsen	NL030827	8964

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EXAMINER

DOAK, JENNIFER L

ART UNIT PAPER NUMBER

2872

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/17/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/564,419	Applicant(s) WILLEMSSEN ET AL.	
	Examiner Jennifer L. Doak	Art Unit 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Objections

3. Claims 2 and 3 objected to because of the following informalities: the use of the word "preferably" in these claims makes them unclear. For the purposes of examination, Examiner has addressed the indicated limitation to be in the range of 10kHz-110kHz with respect to Claim 2 and at least 15 degrees with respect to Claim 3.
4. Claims 10-11 are objected to because preamble statements of dependent claims should be consistent with the claim from which they depend. If Claim 10 is to be directed to a display device, it should be rewritten as an independent claim including all the limitations of Claim 1.
5. Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. **Claims 1-6 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Neukermans et al. (US 5,629,790).**

INDEPENDENT CLAIM

8. Regarding Claim 1, Neukermans et al. teaches a two dimensional scanning device (Figs. 12a and 12b), for use in a projecting display (Abstr.), comprising:
- a. a surface (207) suspended by at least two torsion elements (209) defining a torsion axis,
 - b. and a first actuator (col. 10, lines 12-53) for pivoting the surface (207) around the torsion axis (Fig. 12a – seen passing through the x-axis through elements (209)),
 - c. characterized by a cantilever beam ((203), (205), and (207)) having one end fixed in relation to the surface and an opposite end arranged to bend around a bending axis non-parallel to the torsion axis (Fig. 12a – seen passing through the x-axis through elements (209)),
 - d. a reflective surface (203) provided on the cantilever beam ((203), (205), and (207)), and
 - e. a second actuator (col. 10, lines 12-53) for bringing the cantilever beam ((203), (205), and (207)), to oscillate at its resonance frequency (col. 10, lines 12-53; col. 11, lines 35-62).

DEPENDENT CLAIMS

9. Neukermans et al. teaches, as discussed above, all the elements of Claim 1, upon which the following claims depend.

10. Regarding Claim 2, Neukermans et al. further teaches that a cantilever beam ((203), (205), and (207)), has such mass and such dimensions that its resonance frequency is in the range of 10 kHz-100 kHz. Neukermans teaches a frequency of 20 kHz (col. 10, lines 12-53). It is inherent, according to Hooke's Law, that the mass and dimension must accommodate the named frequency.

11. Regarding Claim 4, Neukermans et al. further teaches in Fig. 12a that the cantilever beam ((203), (205), and (207)), has two legs (205), each being fixed in relation to the surface (207), and wherein the reflective surface (203) extends to unite the two legs (205).

12. Regarding Claim 3, Neukermans et al. further teaches that the cantilever beam ((203), (205), and (207)), has such dimensions that it is bendable around the bending axis in a range of at least 15 degrees, and preferably more than 50 degrees. Neukermans et al. teaches "several degrees to tens of degrees" (col. 1, lines 9-17). "Tens of degrees" is plural and thus means at least two times ten, thus twenty, which exceeds the at least 15 degrees claimed.

13. Regarding Claim 5, Neukermans et al. further teaches in Fig. 12a that the cantilever beam ((203), (205), and (207)) and the surface (207) are formed from one substrate (col. 1, lines 22-48), the cantilever beam ((203), (205), and (207)) extending from one side of an opening in the surface (207).

14. Regarding Claim 6, Neukermans et al. further teaches that the surface (207) and the torsion bars (209) are formed by etching a substrate of silicon (col. 1, lines 22-48) or silicon nitride. Moreover, the further limitations of claim 6 are directed to method steps of making the

Art Unit: 2872

device. The method limitations are not germane to patentability pursuant to MPEP §2112.02, since it has been held that “[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.’ *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (citations omitted).”

15. Regarding Claim 10, Neukermans et al. further teaches a projecting device (the “television” referenced in Abst.), that includes a scanning device according to Claim 1 (Abst.).

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. **Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Neukermans et al. (US 5,629,790).**

18. Regarding Claim 7, Neukermans et al. teach, as discussed above, all the elements of Claim 1, upon which this claim depends. Neukermans et al. teach the use of electrostatic actuators (Fig. 2b:(223)). Neukermans et al. fail to teach that the second actuator is a piezo-electric actuator. However, it is well known in the art that piezo-electric actuators are common actuators to use in micro-machined scanning mirror systems. It would have been obvious to one

Art Unit: 2872

of ordinary skill in the art at the time the claimed invention was made to use a piezo-electric actuator in place of an electrostatic actuator, because a piezo-electric actuator provides for precision of the oscillation. Moreover, they are art-recognized equivalents.

19. **Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Neukermans et al. (US 5,629,790) in view of Bard et al. (US 5,486,944).**

20. Regarding Claims 8 and 9, Neukermans et al. teach, as discussed above, all the elements of Claim 1, upon which these claims depend. Neukermans et al. fail to explicitly teach that the first actuator is a galvanic actuator, comprising an electromagnet or that the first actuating means comprises two electrically conducting coils. Neukermans et al. and Bard are related art, since they are both bi-directional scanning devices. Bard does teach that the first actuator is a galvanic actuator, comprising an electromagnet (Abstr.) or that the first actuating means comprises two electrically conducting coils (Abstr.). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify Neukermans et al., they are art-recognized equivalents to include a first galvanic actuator, since electromagnets and conducting coils are known to drive wide range motion.

21. **Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Neukermans et al. (US 5,629,790) in view of Conemac (US 6,226,126).**

22. Regarding Claim 11, Neukermans et al. teach, as discussed above, all the elements of Claim 10, including the scanner of Claim 1. Neukermans et al. fail to teach that the projecting device, further comprises means for generating a plurality of laser beams, a driver for modulating the laser beams, and means for collimating and combining the beams, and directing the combined beam onto the scanner. Neukermans et al. and Conemac are related art since both

Art Unit: 2872

center on bi-dimensional scanning devices. Conemac teaches that projecting device that comprises means for generating a plurality of laser beams (col. 8, lines 31-45), a driver for modulating the laser beams (col. 8, lines 31-45), and means for collimating and combining the beams, and directing the combined beam onto a scanner (col. 1, lines 14-43; col. 2, lines 37-55; and col. 9, lines 6-36). It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify Neukermans et al. to include the laser beam generation and driver of Conemac, in order to provide scanning precision and accurate direction of the scanning beam. Further, the modified projection device including the scanning system would provide for a higher principal vibration frequency and reduced breakage.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer L. Doak whose telephone number is 571-272-9791. The examiner can normally be reached on Mon-Thur: 7:30A-5:00P, Alt Fri: 7:30A-4:00P (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on 571-272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2872

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JD



Stephone B. Allen
Supervisory Patent Examiner